

a3
However, this squirrel cage conductor 23 has a problem of high machining cost. In order to solve this problem, another composite squirrel cage rotor 30 is proposed as shown in Figs. 5 and 6. This composite squirrel cage rotor 30 includes, two end rings 37. A plurality of holes are formed in each of the end rings 37 and the both ends of the same number of conductor bars 38 are inserted into holes of two end rings 37 by interference fit, with appropriate axial load.

Page 6, lines 12, 13:

a4
Fig. 3a is a perspective view of another conventional composite squirrel cage type rotor;

Page 8, lines 2-4:

a5
Powder of high magnetic permeability is employed to enhance magnetic property of polymer resin part. This powder should be uniformly distributed in the polymer resin part. Chopped fibers with the length of 0.5 to 50 mm may be added to the polymer resin part so as to improve mechanical properties such as thermal stability and stiffness of the rotor structure.

Page 8, line15 - page 9, line 5:

a6
As mentioned above, the heat pipes 135 are inserted into the slots 134 of the squirrel cage conductor 133 so as to dissipate heat generated during the induction operation. In this case, the heat pipes 135 are fixed in the slots 134 by polymer resin during the curing of the polymer resin part 132. The heat pipe is a sort of cooling device in which heat is transmitted from a heat source to a heat sink while circulating functional fluid, such as ammonia, methanol, Freon or the like, repeats an isothermal cycling process in vacuum sealed pipes. Heat is absorbed in the process of the phase change of the functional fluid from a liquid phase to a gaseous phase when the heat is applied to the heat pipe, gaseous functional fluid moves from a heat source side of the heat pipe to the opposite side, and heat is dissipated in the process of the phase change of the operating fluid from a gaseous phase to a liquid phase,

thereby removing heat.

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In order to increase magnetic flux density of the composite squirrel cage rotor, an inner core 136 made of material having high magnetic permeability, such as steel, may be inserted between the rotating shaft 131 and the polymer resin part 132. In this case, the inner core 136 has a role of guiding magnetic flux from the stator to the motor effectively.

Page 10, lines 6-16:

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In the method for fabricating the composite squirrel cage rotor, the rotating shaft 131 and the inner core 136, need not to be assembled together with the squirrel cage conductor 133. After disposition of the heat pipes 135 into the slots 134 and inserting the squirrel cage conductor 133 into the mold cavity 142, polymer resin containing powder of high magnetic permeability is injected into the mold cavity 142 and is cured in an autoclave under predetermined curing conditions. Accordingly, the polymer resin is cured at the cavity of the squirrel cage conductor 133 and the gaps between the slots 134 and the heat pipes 135.

When the polymer resin part is cured, the center portion of the filled squirrel cage conductor 133 is bored for assembly of inner core 136 using a drill. The inner core 136 is inserted into the bored center portion in the center of the composite squirrel cage rotor. The rotating shaft, 131 is inserted into the inner core 136. Through these processes, the composite squirrel cage rotor having a polymer resin part containing powder of high magnetic permeability is completed.

Page 12, lines 4-6:

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Additionally, the present invention provides a composite squirrel cage rotor in which powder of high magnetic permeability is uniformly distributed in the polymer resin part, so that magnetic property is enhanced, thereby improving the performance of the motor.

IN THE CLAIMS

Please amend the claims as follows:

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1.(Amended) A composite squirrel cage rotor, comprising:
a rotating shaft;